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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,869	12/21/2005	Thomas Henry Bell	5331-108	1398

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EXAMINER	
SCHNEIDER, CRAIG M	

ART UNIT	PAPER NUMBER
3753	

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12/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,869	BELL, THOMAS HENRY	
	Examiner	Art Unit	
	CRAIG M. SCHNEIDER	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-12,14-18,27,29 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-12,14-18,27,29 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 September 2009 and 25 August 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 9/17/09 and 8/25/08. These drawings are acceptable.

Specification

2. The disclosure is objected to because of the following informalities:

On page 16, line 13 a paragraph was added on 8/25/08 that is a duplicate from page 18, line 13 with a minor change. This paragraph should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 1-6, 8-12, 14-18, 27, 29, and 30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicant is claiming a substantially rigid and curved member (9) mounted on the first diaphragm (14b) but the first diaphragm does not contain the substantially rigid and curved member as disclosed. Per the disclosure the substantially rigid and curved member is associated with the flexible member (8) of the controlling means. Therefore the applicant does not have written description of the claimed subject matter. For examination purposes the examiner is treated the substantially rigid and curved member as being mounted on he flexible member (8) as shown in Figure 3.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-6, 8-12, 18, 27, and 29 are rejected as understood under 35 U.S.C. 103(a) as being unpatentable over Chen (4,945,944) in view of Cordua (5,632,465).

Chen discloses a valve system (1) for use with a variable head of fluid, the valve system comprising a first diaphragm (51) and means for (7, 6, 631, 61, 4, and 41) controlling a position of the first diaphragm based on a fluid pressure associated with the variable head of a first fluid; the controlling means comprising a movable flexible member (63)(col. 2, line 63 to col. 5, line 64). Chen fails to disclose a substantially rigid and curved member mounted on the flexible member. Cordua discloses the use of a substantially rigid and curved member (86) mounted on a diaphragm (42) with a biasing spring (87) as seen in Figures 3 and 5 (col. 5, line 50 to col. 9, line 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a support element on the diaphragm as disclosed by Cordua with the flexible member of Chen, in order to reinforce the diaphragm at the seating area. This combination would be capable of performing the functional limitation of preventing a back pressure from creating a localized distortion of the flexible member.

Regarding claim 2, wherein when the valve system is deployed the first diaphragm is located above the variable head of the first fluid as seen in Figure 6B.

Regarding claim 3, wherein the valve system is connected to a fluid supply line (2a) to the variable head of the first fluid such that the first diaphragm moves between an open position as seen in Figure 6A, wherein the first fluid is free to flow within the fluid supply line, and a closed position as seen in Figure 6B, wherein the first fluid is prevented from flowing within the fluid supply line.

Regarding claim 4, wherein the first diaphragm comprises a blocking means (chamber between 51 and 4) to assist the first diaphragm in moving to the closed position.

Regarding claims 5 and 27, wherein the means for transferring a fluid pressure associated with the variable head of the first fluid comprises a compressible second fluid (air)(col. 5, lines 3-17).

Regarding claim 6, wherein the compressible second fluid is contained within at least one tube (7) connected at a first end to the first diaphragm and positioned so that when in use the second end of the at least one tube is located below the surface of the head of variable first fluid as seen in Figure 6B.

Regarding claim 8, wherein the flexible member comprises a diaphragm valve (631), and wherein the at least on tube is connected to the first diaphragm via a diaphragm valve.

Regarding claim 9, wherein the controlling means further comprises one or more chambers (61 and chamber between 51 and 4) located between the diaphragm valve and the first diaphragm.

Regarding claim 10, wherein the first diaphragm comprises an aperture (511) that provides a means for communicating a sample of fluid taken from the supply line to the one or more chambers.

Regarding claim 12, wherein the valve system further comprises an adjuster (73 and 74) wherein the adjuster provides a means for varying the dependency of the position of the first diaphragm to the fluid pressure associated with the variable head of the first fluid.

Regarding claim 18, wherein the controlling means comprises a plunger (sealing surface of 631) that assists movement of the first diaphragm to the closed position.

Regarding claim 29, wherein the flexible member comprises a diaphragm valve that is coupled to the fluid pressure associated with the variable head of a first fluid, wherein increasing fluid pressure causes the diaphragm valve to move, and further comprising a plunger (sealing surface of 631) coupled to the diaphragm valve, wherein movement of the diaphragm valve causes the plunger to close an inlet hole.

6. Claims 14 and 15 are rejected as understood under 35 U.S.C. 103(a) as being unpatentable over Chen in combination with Cordua as applied to claim 12 above, and further in view of Hostetler (4,344,456).

Chen in combination with Cordua disclose all the features of the claimed invention except that wherein the adjuster comprises a means for varying the resistance to activate the diaphragm valve and further wherein the means for varying the resistance to activate the diaphragm valve comprises a bias means and an adjustment screw wherein the position of the adjustment screw defines the resistance force applied

by the bias means to the diaphragm valve. Hostetler discloses a valve system wherein the adjuster (30, 34, 38, 40, 42, 44, 46, 48, 50, and 52) comprises a means for varying the resistance (46) to activate the diaphragm valve and further wherein the means for varying the resistance to activate the diaphragm valve comprises a bias means (50) and an adjustment screw (46) wherein the position of the adjustment screw defines the resistance force applied by the bias means to the diaphragm valve (col. 3, lines 9-30 and col. 4, line 34 to col. 5, line 32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a spring adjustment device as disclosed by Hostetler onto the diaphragm valve of Chen in combination with Cordua, in order to regulate the movement of the diaphragm valve.

7. Claims 16 and 17 are rejected as understood under 35 U.S.C. 103(a) as being unpatentable over Chen in combination with Cordua as applied to claim 3, and further in view of Tanikawa (2002/0124880).

Chen in combination with Cordua discloses all the features of the claimed invention except that wherein the valve system further comprises an automatic cut off means so that in the event of mechanical failure the first diaphragm is moved to the closed position and further wherein the automatic cutoff means comprises one or more sections of absorbent material such that when the first fluid is incident on the absorbent material expansion occurs so as to cause the first diaphragm to move to the closed position. Tanikawa discloses an absorbent material (203) that is used to close a valve

(209) when the absorbent material comes into contact with a liquid as seen in Figure 2(a) and 2(b)(page 2, para. 21-22 and page 3, para. 32-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize an absorbent material as disclosed by Tanikawa below the diaphragm valve of Chen in combination with Cordua, in order to ensure that if the water level rises to the point of the diaphragm valve the absorbent material will close the valve as disclosed by Tanikawa.

8. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in combination with Cordua as applied to claim 29 above, and further in view of Kenney (2,758,717).

Chen in combination with Cordua disclose all the features of the claimed invention except that the substantially rigid and curved member is positioned between the plunger and the diaphragm valve. Kenney discloses the use of a two members (93 and 95) clamped on each side of the diaphragm (94)(col. 4, lines 5-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a corresponding shaped member on the other side of the diaphragm as disclosed by Kenney on the other side of the diaphragm from the rigid and curved member of the Chen in combination with Cordua valve, in order to have a secure attachment to the diaphragm.

Response to Arguments

9. Regarding applicant's remarks, as they may apply to the above, Cordua is relied upon to show the substantially rigid and curved member which is mounted on the

diaphragm and which is adapted to prevent a backpressure from creating a localized distortion of the diaphragm.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patterson (732,438) and Bergmark (961,577) disclose a rigid member that is supported by the diaphragm and connects to the valve element that is controlled by the movement of the diaphragm.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG M. SCHNEIDER whose telephone number is (571)272-3607. The examiner can normally be reached on M-F 8:00 -4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. M. S./
Examiner, Art Unit 3753
November 25, 2009

/John Rivell/
Primary Examiner, Art Unit 3753